

AMERICAN ACADEMY of OBSTETRICS and GYNECOLOGY

Volume 5

May 1955

Number 5

Partial Colpocleisis: The Le Fort Procedure

Analysis of 100 cases

HENRY C. FALK, M.D., and SHERWIN A. KAUFMAN, M.D.

TWO OF THE most annoying gynecologic L conditions seen in elderly women are prolapse of the uterus and inversion of the vagina following hysterectomy. Because of senility or associated medical conditions such as hypertension, cardiac disease, nephritis, diabetes, and so on, these patients usually are treated palliatively by means of pessaries. These must be removed, cleaned, and reinserted every 6 weeks. Many patients can be quite comfortable with a pessary, while others develop a vaginal irritation from prolonged use which makes this method of treatment objectionable in such patients. Furthermore, in a marked relaxation of the pelvic floor a pessary may be inadequate for

From the Departments of Obstetrics and Gynecology of the Beth Israel and French Hospitals, New York, N. Y.

proper support. In these patients it becomes necessary to consider some form of surgery which can be performed under local, low spinal or light general anesthesia, which is relatively free from shock and hemorrhage, and which has a high rate of cure.

Such an operative procedure, so free from shock as to be suitable for even the "poor operative risks," is the Le Fort partial colpocleisis. This operation does not apply to the various degrees of uterovaginal prolapse occurring in women in the childbearing age. It is used only in postmenopausal women with total or partial inversion of the vagina, with or without a uterus.

One must clearly distinguish, however, between inversion of the vagina with total prolapse of the uterus and inversion of the vagina with "prolapse" of a hypertrophied

Vol. 5, No. 5 May, 1955 cervix; the latter is not a true prolapse. True prolapse of the uterus is always preceded by an "unfolding" of a cystocele; in prolapse of a hypertrophied cervix this is not the case. In the latter instance, when the mass is reduced and the patient is asked to strain, the elongated cervix comes out first, instead of the anterior vaginal wall everting. Such cervical prolapse will not be cured by a Le Fort procedure unless the elongated cervix is amputated first, as this elongated, hypertrophied cervix will act as a plunger and undo the operation from above. The total length of the uterus should not exceed 5–6 cm.

HISTORICAL BACKGROUND

An operation for complete procidentia by denuding a portion of the anterior and posterior vaginal walls and suturing them was first suggested by Gerardin in 1823, but he did not perform it. It was not until 44 years later, in 1867, that Neugebauer, following Gerardin's suggestions, successfully performed the operation.

In 1876, Léon Le Fort described practically the same procedure with minor modifications. He described essentially a subtotal colpocleisis in which a rectangular area was denuded on the anterior and posterior walls of the prolapsed mass, and the raw edges were then united. The gradual reduction of the mass lifted the uterus and cervix high in the vagina. For purposes of drainage a transverse canal just below the cervix and two lateral canals were left. The only difference between Le Fort's procedure and that of Neugebauer was that Le Fort's denudation was a little longer and narrower, and he allowed his sutures to slough out instead of removing them.

Le Fort, in discussing the procedure, stated that the uterus did not appear first at the vulva but was gradually drawn down by the unfolding of the anterior and posterior vaginal walls. From this he reasoned that the prolapse might be cured by keeping the

anterior and posterior vaginal walls in apposition. Apparently he also felt that a relaxed perineum might prevent a successful outcome, for his first operation was done in 2 stages, the perineorrhaphy being performed 8 days after the colpocleisis.¹³

The operation was not readily adopted and, in fact, has appeared very infrequently in the world literature since Le Fort's day. Only an occasional worker seemed interested enough in the operation to keep it alive by reintroducing it with various modifications.

Modifications and Results in Practice

The first recorded colpocleisis in the United States was performed in 1880 by Berlin, who reported 3 instances. In one of her cases, where a perineorrhaphy was not done, the operation failed. Since that time, the procedure has been modified by different workers, chiefly by making the anterior and posterior rectangles wider. This provided a larger supporting bar and at the same time decreased the width of the lateral drainage channels. In 1899 Taft reported 1 case, stating that he thought it was a good but not particularly easy procedure. In 1912, Wyatt quoted 8 operations performed by Dr. Tate; his chief modifications were a wider septum and the use of chromic catgut as the suture material. Gotte in 1922 reported 12 Le Fort operations performed under spinal anesthesia with excellent results, emphasizing that the partial colpectomy was much less serious an operation than the total colpectomy. Brocq and Mora, in 1925, reported 39 cases "without serious complication."

In 1934, Bellas gave a good diagrammatic description of the Le Fort procedure but did not give the number of cases in his small series, stating that there was only 1 failure in the group. Phaneuf, in 1935, reported 20 cases with only 2 recurrences (10 per cent), and Adair and Da Sef cited 38 cases of their own the following year, with only 1 failure (2.5 per cent). In Adair's series a pubocervical fascial plication was performed prior

Obstetrics and Gynecology to the colpocleisis. Collins and Lock, in 1941, reported 31 cases, with "perfect functional and anatomical results" in 29 (93.5 per cent). In 1948, Mazer and Israel gave an extensive analysis of 43 cases with only a single failure. Twelve of their cases had chronic cervicitis, and the Le Fort operation was preceded by a circular amputation of the cervix. In 1952, Wolf presented 14 cases successfully treated by the Le Fort operation and suggested that this procedure should be used more widely.

An interesting modification of the Le Fort procedure permitting sexual intercourse was advocated by Goodall and Power. By denuding a triangular flap on the anterior and posterior vaginal walls, a double vagina is created in the upper third of the canal while the lower two thirds of the canal remains single. The colpocleisis principle is thus maintained only in the upper third of the canal. Patients subjected to this procedure must either be postmenopausal or rendered sterile at the time of operation.

ADVANTAGES

There has been more or less general agreement among those performing the operation that the Le Fort procedure has the following advantages:

- 1. No shock and very little loss of blood.
- 2. Performance under local or very light general anesthesia.
- 3. Rapid performance.
- 4. Creation of lateral canals which afford a natural exit for cervical secretions.
- 5. Ambulation on first postoperative day.
- No necessity for further treatment other than an occasional douche for cleanliness.
- 7. Therapeutic douches may be given through the channels without fear of retention.*

These advantages are of great importance when one considers the type of patients (elderly, poor risk) who undergo this procedure.

DISADVANTAGES

- 1. Inaccessibility of the uterus in case of postmenopausal bleeding.
- 2. Difficulty in diagnosing carcinoma of the cervix or fundus after operation.
- 3. Preclusion of coitus.

Uterine bleeding after a colpocleisis poses a knotty problem. One must first make sure the patient has not been given hormones, which are a common cause of postmenopausal benign bleeding. (Hormones are, for this reason, contraindicated postoperatively.) Papanicolaou smears may be taken through the canals to aid in the diagnosis if withdrawal bleeding is believed to be the cause. If the patient has taken no hormones, however, one is obliged to do an abdominal panhysterectomy to rule out a carcinoma.

Mazer and Israel reported 3 patients in detail (out of 38 followed up) who developed uterine bleeding following a Le Fort operation. The first 2 were subjected to abdominal panhysterectomy without disturbing the previous partial colpocleisis. In one of these an adenocarcinoma of the fundus was found and abdominal x-radiation instituted. The third case had only 1 episode of bleeding; vaginal smears were negative. Since the bleeding did not recur, she was watched with "scientific apprehensive expectancy." The authors point out, however, that the incidence of carcinoma of the uterus in elderly women is low enough not to be a deterrent to the use of the Le Fort procedure when indicated.

In regard to coitus, it is most important, regardless of the patient's age, to carefully explain to her and her husband that she will have a nonfunctioning vagina so far as intercourse is concerned. One patient in the present series, a widow of 65, was told of this feature but apparently did not understand it

^{*} In a case of one of the authors (H. C. F.), where operation was necessary before vaginal wall ulcers had healed, an infection developed post-operatively. Irrigation through the canals with 2% aqueous mercurochrome resulted in rapid cure.

FALK & KAUFMAN

too well; later she threatened to sue because she "could not get married."

INDICATIONS

It is obvious that the Le Fort partial colpocleisis is indicated only in selected patients. Specifically, the operation is most suitable in elderly or aged women with complete procidentia or with inversion of the vagina after hysterectomy. The operation is also applicable in partial prolapse where the usual operative repair might result in high morbidity or fatality because of some serious associated medical condition.

MATERIAL AND METHOD OF PRESENT STUDY

This paper presents an analysis of 100 Le Fort procedures using a standardized technic, with follow-up of 2–22 years. Of the 100 patients, 74 were private patients of the senior author, while the remaining 26 were patients treated by several different operators from both the resident and attending staffs on ward services. More important than the large number herein presented is the fact that each operation was performed in an identical manner, thus affording a concrete basis for judging follow-up examinations. Moreover, this standardized technic could readily be taught to the resident staff over the years.

All operations were performed either at Beth Israel Hospital or French Hospital, New York City, during the years 1930 to 1950.

Age

The youngest patient in this series was 50 years, the oldest 76, and the average age was 63.9. Only 14 of the women were below 60, while 40 were over 65 years.

Symptoms

The most frequent symptom was a sense of fullness and pressure in the region of the vagina. Local discomfort, frequency, dysuria, and incontinence were frequent associ-

ated complaints in many. It is interesting to note that often 10 or more years elapse between the last delivery and the appearance of symptoms. This condition—total prolapse—rarely develops in the "carriage trade." Total procidentia is primarily a disease of the poor, hardworking woman who frequently lifts heavy weights.

PREOPERATIVE PREPARATION

Insofar as possible, the operation is postponed if the vaginal tissues are markedy atrophic or ulcerated. Collins and Lock advocate vaginal insertion of estrogenic hormone for 1-2 weeks prior to operation to increase the local blood supply and produce a thicker mucosa. We have found this of great value and, in addition, we have found that keeping the patient off her feet except for bathroom privileges helps materially, particularly when the uterus has been "hanging out" for a long time, with resultant chronic irritation. A daily warm douche and "touching up" with silver nitrate seems to help ulcerated areas. If they do not heal readily a biopsy should be taken. In 1 patient (B.I.H.) biopsy of such an area showed basal cell carcinoma. It goes without saying that a Le Fort operation was not performed on this patient.

Anesthesia

LOCAL AND GAS. The local infiltration of 0.5% novocaine in saline into the vaginal tissues, combined with pudendal block, is a safe and generally effective method. The patient experiences very little discomfort throughout the operation except in the region of the urethra which has to be infiltrated carefully. Under local anesthesia, the patient's complaints do not usually refer to the operative field but rather to the position of the legs. For this reason, and also because of some pain during the suturing of the levators, we supplement many of our local anesthesias with a minimal amount of gas, usually toward the end of the procedure.

Obstetrics and Gynecology Local anesthesia had the additional advantage of materially aiding the surgeon in obtaining the correct lines of cleavage and in decreasing the amount of blood loss.

LOW SPINAL. Low spinal anesthesia has been reported in a few series. In general, we feel that simpler methods should suffice for this operation.

analgesia. Bellas believes that most surgeons will resort eventually to some form of analgesia alone. In his experience, 3 grains of sodium amytal by mouth 1½ hours preoperatively, followed in 1 hour by morphine and scopolamine, has been sufficient. Preoperative sedation is an essential part of local anethesia. If sedation is not given in sufficient dosage, the local anesthesia, particularly in a nervous patient, will fail.

OPERATIVE TECHNIC

As mentioned previously, Le Fort's own description of this operation has undergone many variations and modifications over the years, chiefly in the widening of the mucosal strips, the narrowing of the lateral canals, and the change of suture material. Most current modifications show great similarity in many respects.

The technic used in the 100 patients who comprise this series has been described by one of us (H. C. F.).⁷ The only difference in the condensation which follows is in the lighter suture material now used.

Vaginal Preparation

IMMEDIATELY PREOPERATIVE. The older forms of vaginal preparation have now been discarded. The night before operation a vaginal suppository of 300,000 units of penicillin is inserted. No douche is given.

In the operating room the patient is placed in the lithotomy position, the vagina is wiped with a dry sponge, and the vagina and surrounding areas are painted with the particular antiseptic skin preparation in use. The patient is draped and a short, weighted speculum may be inserted into the vagina.

Procedure

The labia are stitched to the adjacent thighs. A rectangular area of vaginal mucosa is denuded on the posterior vaginal wall, beginning 1 cm. below the external os of the cervix and extending to within 2 cm. of the mucocutaneous junction of the perineum. The width of this area will vary with the size of the prolapse. It should be marked out lightly with a knife. It is usually denuded from left to right with a knife (Fig. 1), cutting towards the vaginal mucosa overlying the fingers. Bleeding points are clamped and ligated. A similar area is denuded on the anterior vaginal wall from 1 cm. below the urethra to 1 cm. above the external os (Fig. 2). A piece of vaginal mucosa about 2 cm. wide is thus allowed to remain for the lateral channels (Fig. 3).

The denuded areas are approximated by inserting a suture of #00 chromic catgut on a medium Lilienthal needle. The suture is inserted at the left outer lower edge of the denuded surface, catching a piece of vaginal mucosa of the anterior vaginal wall. It is then inserted through the raw area for about 1 cm., and through the lower cut edge of the denuded area. It is brought into the upper cut edge of the denuded area of the posterior vaginal wall, through the raw area parallel to the previously inserted suture, and is brought out through the cut edge of the lateral denuded area. The left border of the anterior vaginal wall is sutured to the left border of the posterior vaginal wall. These sutures are held in a clamp.

A similar stitch is placed on the right side of the denuded area. Here the needle is put into the needle holder in a left-handed position. These sutures are inserted in pairs, first on the left side, then on the right and tied (Fig. 4, 5, 6). As each pair of sutures is tied the anterior and posterior vaginal walls are approximated, and the prolapse further

Vol. 5, No. 5 May, 1955

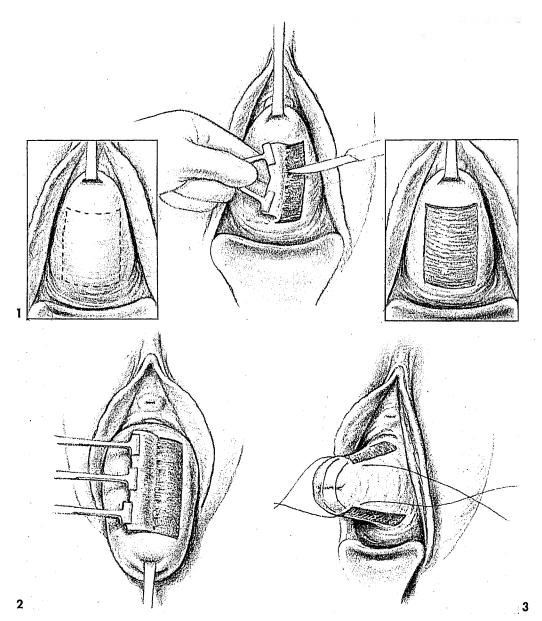


Fig. 1. The cervix is drawn upward and a rectangular area is marked with a knife on the posterior vaginal wall, beginning about 1 cm. below the external os and extending downward to within 2 cm. of the mucocutaneous junction. The width of the area should vary according to the size of the prolapse. The vaginal mucosa in this area is denuded by sharp and blunt dissection. All bleeding points are clamped and ligated. Fig. 2. The cervix is drawn downward and a similar area is denuded on the anterior vaginal wall from 1 cm. below the urethra to 1 cm. above the external os. Only vaginal mucosa is removed, allowing as much tissue to remain on the bladder as possible. Fig. 3. A portion of vaginal mucosa about 2 cm. wide remains on the lateral vaginal walls to allow for the subsequent formation of 2 lateral channels. Approximation of the denuded areas is begun, using #00 chromic catgut sutures on a medium Lilienthal needle. The first suture is begun on the left edge of the anterior denuded area going from without inward. This catches the edge of the vaginal mucosa at the lower angle of the denuded area and extends medially for about one-third the denuded area. The suture then goes through the lower edge of the anterior denuded area and crosses over the cervix to a corresponding area on the upper edge of the posterior denuded area. This suture is then continued from medial to lateral on the posterior surface bringing the suture out through the corresponding edge of the posterior vaginal mucosa. This suture is clamped and not tied. The suture on the right side is inserted in the same way as the suture on the left side with the exception that the needle is put on the needle holder in reverse (left-handed).

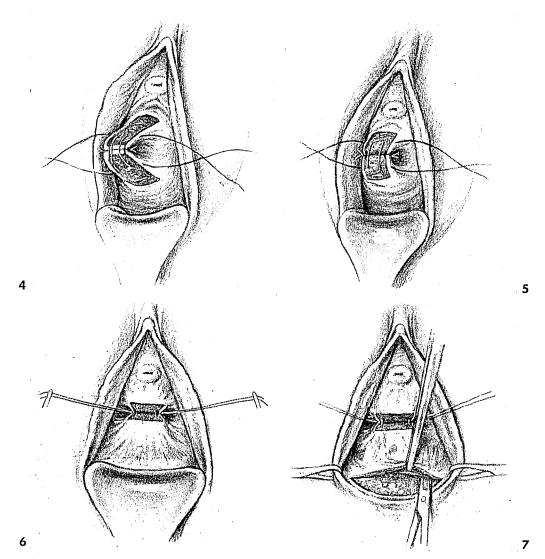


Fig. 4. The last placed suture (on the right) is tied and held along with a clamp. The original suture on the left side is then tied and held. The tying of these sutures causes the cervix to disappear from view and allows the appearance of the two channels, one on either side. The next layer of sutures is inserted in a similar manner, held long, and the first sutures are cut.

Fig. 5. As many sutures as necessary are inserted to approximate the 2 raw areas, always beginning on the patient's left, anteriorly from without inward, then elevating the protruding area and inserting it posteriorly from medial to lateral. As each pair of sutures are tied the anterior and posterior vaginal walls are approximated and the prolapse is gradually reduced. Fig. 6. The last lateral stitches have been placed and tied. The prolapse is now entirely reduced. The openings of the lateral channels are seen on either side of the remaining denuded area.

Fig. 7. Perineorrhaphy (Figs. 7-15) Holding the lateral edges of the caruncula myrtiformes taut with tenacula, the mucocutaneous junction is excised. The outer edge of the vaginal mucosa on the left side is then grasped with a mouse-tooth forceps and a pair of curved scissors is introduced under it laterally and upward. With a short snipping motion a line of cleavage is found and the posterior vaginal mucosa is dissected from the underlying tissue.

FALK & KAUFMAN

reduced. A high perineorrhaphy (Figs. 7 to 15), bringing the levator ani muscles together, must be done to insure success.

to the urethral meatus because, after suturing, the traction of the posterior upon the anterior vaginal wall may cause incontinence.

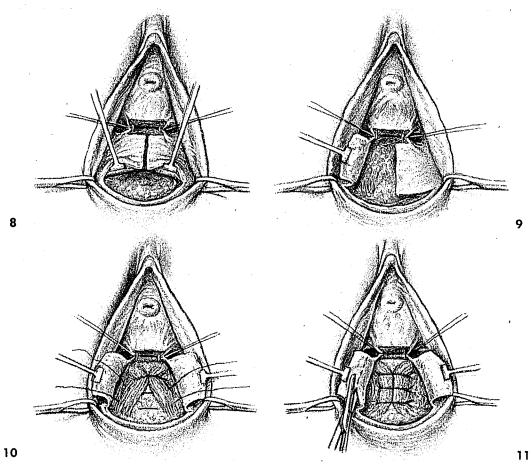


Fig. 8. The same cleavage plane is found on the right side. The separated edge of vaginal mucosa is grasped with T clamps on both sides. The center portion of the vaginal mucosa is incised vertically.

Fig. 9. A T clamp is applied to the medial cut edge of the vaginal mucosa. The T clamps are held firmly while the vaginal mucosa is separated from the underlying rectum upward and laterally until both levator ani muscles become accessible.

Fig. 10. The left index finger is introduced into the cleft between the two levators and thus protects the rectum while the levator ani muscles are approximated with 3 sutures (#1 chromic catgut), bringing their edges together in front of the rectum.

Fig. 11. Excess vaginal mucosa is removed on both sides.

Comment

The important points in technic are these:

- 1. The posterior vaginal wall should always be denuded first, so that blood from the anterior wall will not drip into the field.
 - 2. One should not go closer than 1 cm.

(Mazer and Israel believe that this incontinence is caused by not having a high perineal body, and they cite 1 patient who was cured by reoperation. We do not agree with this.)

3. The mucosa is best dissected free with

Obstetrics and Gynecology

PARTIAL COLPOCLEISIS

a knife, cutting toward the mucous membrane at all times. Scissors remove too thick a strip of mucosa.

- 4. The diameter of the canal created will always be about one third the width of the lateral mucosal strip.
- 5. A perineorrhaphy is essential to insure a successful result.

POSTOPERATIVE CARE

The average postoperative stay was 11.8 days. However, some patients had had a

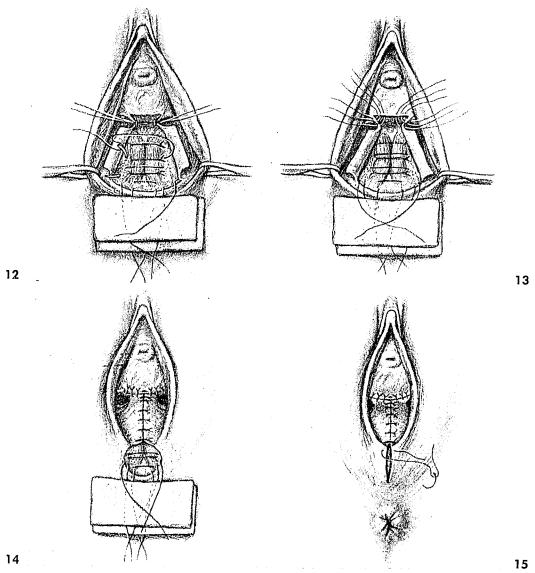


Fig. 12. The tissue superficial to the levator ani muscle (Colle's fascia) is brought together with 3 interrupted mattress sutures. These are not tied, but are held long, separated by gauze pads. Fig. 13. The remainder of the denuded area at the angles of the anterior denudation is now approximated with fine interrupted stitches of #00 chromic catgut, which are tied and cut. Fig. 14. The cut edges of the posterior vaginal mucosa are closed with interrupted sutures of #00 chromic catgut up to the mucocutaneous junction. Fig. 15. The previously placed Colle's fascia stitches are tied and cut. A final continuous subcuticular suture of #00 chromic catgut approximates the perineal skin.

Vol. 5, No. 5 May, 1955

FALK & KAUFMAN

prolonged preoperative stay in order to reduce the surgical risk and to improve the condition of the vaginal mucosa.

Patients are encouraged to get out of bed on the first postoperative day. Catheterization is rarely necessary. Hot sitz baths help reduce discomfort in the perineal area. An enema is given routinely on the third postoperative day. We do not find it necessary to give frequent instillations of antiseptic solutions into the channels, as advocated by Mazer and Israel.

RESULTS

There was no mortality in this series. Morbidity was almost entirely confined to urinary tract infections, chiefly cystitis, which became less frequent with the advent of antibiotics. There were 2 infected perineorrhaphies and 1 vaginal infection where operation had been carried out before vaginal ulceration had healed. There was no recurrence of prolapse in these 3 patients.

Follow-up examinations were made on all the 100 patients, the shortest follow-up being 2 years. A good anatomic result was obtained in 96. Two patients had a troublesome residual cystocele, and 2 others had a troublesome residual rectocele. There was no recurrence of uterine prolapse. Other late postoperative complications were as follows: frequency, or other signs of cystitis, was present for prolonged periods in 11 patients; 4 developed incontinence where none had existed before operation. It is believed that this was due to having gone too close to the urethral meatus during the anterior flap dissection. Fortunately we have had no case of postmenopausal bleeding requiring investigation in this series.*

Follow-up Results of Others

In reporting their follow-up in 43 cases,

Mazer and Israel cite 1 failure; this was a woman who had had a vaginal inversion following an abdominal hysterectomy. She was cured by total vaginal closure. In Phaneuf's series of 20 cases there were 2 recurrences. One was attributed to local sepsis secondary to marked atrophy and poor blood supply; the other was apparently due to postoperative hemorrhages necessitating packing on two occasions. In Collins and Lock's series of 31 cases, there was 1 complete failure, 2 anatomic failures, and 3 anatomic failures with fair symptomatic results.

SUMMARY AND CONCLUSIONS

- 1. The history of the Le Fort colpocleisis has been reviewed.
- 2. A detailed analysis of 100 cases using a standardized technic is presented.
- 3. Anesthesia, preoperative preparation, technic, postoperative care, and end results have been discussed.
- 4. The Le Fort procedure entails minimum risk and complications and is an excellent operation for complete prolapse of the uterus or vagina in elderly women.

REFERENCES

- ADAIR, F. L., and DASEF, L. LeFort colpocleisis. Am. J. Obst. & Gynec. 32:218, 1936.
- Bellas, J. E. Prolapse of the uterus. Am. J. Surg. 25:258, 1934.
- 3. Berlin, Fanny Three cases of complete prolapsus uteri operated upon according to the method of Leon Le Fort. Am. J. Obst. & Gynec. 14:866, 1881.
- BROCQ, P., and NORA, G. Traitement du prolapsus utero-vaginal total chez les femmes agées par l'opération de Le Fort élargé. Gynec. et Obst. Par. 11:338, 1925.
- COLLINS, C. G., and LOCK, F. R. The Le Fort colpocleisis. Am. J. Surg. 53:202, 1941.
- 6. COTTE, G. Traitement du prolapsus des vieilles femmes par l'opération de Le Fort. Lyon chir. 19:625, 1922.
- FALK, H. C. Operating Room Procedure. New York, Putnam, 1942.
- GERADIN, R. Mémoire présenté à la société médicale de Metz en 1823. Arch. gén. de Méd. Paris (3 ième année) 8:132, 1825.
- GOODALL, J. R., and POWER, R. M. H. A modification of the Le Fort operation for in-

Obstetrics and Gynecology

^{*} Since this series was studied we have had 1 case of postmenopausal bleeding. A panhyster-ectomy was performed and an endometrial carcinoma was found. Patient made an uneventful recovery.

PARTIAL COLPOCLEISIS

- creasing its scope. Am. J. Obst. & Gynec. 34:968, 1937.
- Le Fort, L. Nouveau procédé pour la guérison du prolapsus uterin. Bull. gén. de thérap. 92:337, 1877.
- MAZER, C., and ISRAEL, S. L. The Le Fort colpocleisis: An analysis of 43 operations. Am. J. Obst. & Gynec. 56:944, 1948.
- Neugebauer, L. A. Einige Worte über die mediane Vaginalnaht als Mittel zur Beseitigung des Gebarmuttervorfalls. Zentralbl. Gynäk., No. 1-2, pp. 3 and 25, 1881.
- 13. PARAMORE, R. H. The Statics of the Female

- Pelvic Viscera. London, Lewis, 1925, Vol. II.

 14. Phaneuf, L. E. The place of colpectomy in the treatment of uterine and vaginal prolapse.
- Am. J. Obst. & Gynec. 30:544, 1935.
 TAFT, C. E. Le Fort's operation for complete procidentia of the uterus, with a report of a case. Am. J. M. Sc. 98:128, 1889.
- Wolf, W. A. The Le Fort colpocleisis. Am. J. Obst. & Gynec. 63:1346, 1952.
- 17. WYATT, J. Le Fort's operation for prolapse, with an account of eight cases. J. Obst. & Gynaec. Brit. Emp. 22:266, 1912.

South Atlantic Association of Obstetricians and Gynecologists

The Seventeenth Annual Meeting of the South Atlantic Association of Obstetricians and Gynecologists was held at the Williamsburg Inn and Lodge, Williamsburg, Va., February 10, 11, and 12, 1955.

The following officers were elected for 1955-1956:

President DR. WAVERLY R. PAYNE, Newport News, Va.

Vice President DR. CHARLES J. COLLINS, Orlando, Fla.

President Elect DR. JOHN C. BURWELL, JR., Greensboro, N. C. Secretary-Treasurer DR. C. H. MAUZY, Winston-Salem, N. C.

Assistant Secretary-Treasurer. Dr. W. Norman Thornton, Jr., Charlottesville, Va.

The 1956 meeting will be held at the Hollywood Beach Hotel, Hollywood, Fla., January 28 to February 1, 1956. The scientific program will be held on January 30, 31, and February 1.

C. Hampton Mauzy, m.d.

Secretary-Treasurer